NOTES ON THE KELP SHELL, *CANTHARIDUS IRISODONTES*.

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(Communicated by Charles Hedley, F.L.S.)

A Shell Necklace.

As mementoes of their visit to Tasmania tourists often purchase at Hobart necklaces of sea shells—dainty, glittering trinkets of rainbow colours. The beauty of these shells attracted the admiration of even the aboriginals, and a portrait of a native girl, wearing a necklace of them, has been left by Peron. The savages are said to have brightened their shells by burying them with seaweed. Probably an acid produced by the decaying plants dissolved away the exterior of the shell and exposed the brilliant under surface.

These shells have been popularly called "Kelp Shells," because they inhabit the fronds of sea weed. There are two kinds, a larger shell, *Cantharidus eximius*, which was used by jewellers as a knob for ladies' hat pins, and a smaller one, *C. irisodontes*, the necklace shell, properly so called. *C. eximius* prefers the giant kelp, *Macrocystis*, but *C. irisodontes* usually avoids that plant and chooses rather to dwell on the various smaller algae, such as *Sargasso* and *Eklonia*. It ranges from low water down to five fathoms, but is most plentiful at a depth of eight or ten feet. But a large variety of *C. irisodontes* has taken to living on the giant kelp. It is distinguished from *C. eximius*, whose home it shares, by being only half as large and by being smooth instead of spirally grooved.

Cantharidus eximius.

Cantharidus irisodontes.

The shells of *C. irisodontes* are gathered for the market about March, when they are in the best condition. A pole, ten to fourteen feet long, armed with a knife, or with two prongs arranged like a Canterbury hoe, is used to tear up the weed. The bunches thus pulled up are lifted into the boat and sharply shaken over a sheet spread across the bows. The shells drop off the weed onto the sheet, and are afterwards thrown into a basin of fresh water to kill and wash them.

An active collector can obtain nine quarts of shells a day. The price paid for them varies from 2s. 6d. to 4s. a quart, according to their size and lustre. Parrot fish search the sea weed and eat immense quantities of *C. irisodontes*. In January and February, when they are most abundant, the stomach of every parrot fish is full of their broken shells.

The span of life of *C. irisodontes* appears to be about a year. Young shells first become visible on the weed in January or February, but these have obviously been hatched several weeks previously. Some localities are more forward than others. In March they are half grown, reaching a length of 4 mm. and numbering six whorls. By the end of April in Port Arthur the shell has attained its full size, 11 mm., and has altered considerably in contour, the base having become narrower in proportion to the length. By July and August the shell has been eroded or defaced by various incrustations; the earlier whorls, from which the animal has withdrawn, have also decayed and crumbled away. The old shells disappear about October.

The shells vary greatly in different localities. In some parts of Port Arthur they are solid, yet in other beds scarcely a mile distant, they are so thin as to be not worth picking. Most of those from Fortescue Bay are too thin to be used. Recherche Bay produces a long, narrow and unusually heavy shell, which commands a high price. Shells of the finest lustre come from Black Jack, in the north of the Tasman Peninsula.

Shells are cleaned of animal matter by macerating them in water and allowing flies to work on the decaying mass. If insufficiently cleaned, a black speck appears at the tip. The first process in the manufacture of the necklaces is to grade the shells into sizes.

The outer coat of the shell resists the penetration of dye. It may be removed by the agency of lime or of acid. In the first case, chloride of lime is moistened with water till reduced to a thin paste. In this the shells are mixed, the mass is well stirred and left to soak for several hours. The shells are then removed, washed clean, and the under surface is found to be exposed in a glossy condition.

When acid is employed, that material is economised, and the lustre of the shell improved, by using it hot. To one gallon of boiling water three ounces of muriatic acid are added. The shells are enclosed in a net bag, dipped and well shaken in the solution. Lest the acid should eat too deeply, the bag should be withdrawn from time to time and the contents examined. When the etching of the acid has gone far enough, the bag full of shells is transferred to another vessel and thoroughly washed in soap and water. This water must be tepid, for cold water would injure the nacre by cracking it.

The shells are then strung. They are sold in their natural colour, or their appearance may be varied by staining with aniline dyes of assorted shades. The dye is applied hot and in a net bag.

A standard necklace is thirty-six inches long, with an average of eight shells to the inch, and a weight of two ounces. When composed of the small shells, known to the trade as "gems," a necklace may be as light as half-an-ounce.

These Hobart necklaces not only supply the Australasian market, but are exported abroad.